observed, bringing the number of such families to twenty-two. Incidentally, she shows that LIGNIER was probably mistaken in attributing only phloem-forming activity to the cambium in the petiolar bundle of *Arum maculatum*, since she finds secondary xylem in the corresponding bundles of a closely related species (*A. italicum*), and LIGNIER's figures indicate that the same process takes place in *A. maculatum*.—J. M. C.

Heat of inversion.—A careful measurement of the heat of inversion of sucrose by invertase has been made by DIXON and BALL,[21] who used a thermo-couple differential calorimeter in vacuum flasks for the determination. Their results confirm the value found by BROWN and PICKERING many years ago, the mean of all results being 3.83 calories for each gram molecule of sugar inverted. The method is more accurate than the heat of combustion determinations of this value.—C. A. SHULL.

Fungus in Pellia.—RIDLER[22] has described the life history of a fungus occurring in a definite zone in the thallus of *Pellia epiphylla*. It was found to occur in the cells of the sporophyte, from which it was isolated, and identified as a species of *Phoma*. The fungus kills the protoplasts of the infected cells of the gametophyte, which ultimately become brown. The effect on the sporophyte is twofold: the contents of the cells are killed, and the cell walls are also wholly or partially absorbed.—J. M. C.

Mycorhiza of conifers.—MCDOUGALL[23] has identified two mycorhizal fungi from the roots of *Picea rubra* as belonging to the genus *Cortinarius*, and described a tubercle-like mycorhiza of *Pinus Strobus*. He reiterates his opinion that these ectotrophic mycorhizal fungi are of no benefit to the trees concerned, and probably do them no great harm, although truly parasitic in their relationship.—G. D. FULLER.

Rocky Mountain flora.—RYDBERG[24] has continued his studies of the montane regions of the southern Rockies, already noted in this journal,[25] by investigating the aquatic and grassland associations, as well as the flora of the sand hills, dry ridges, and rock slides. The plants of these habitats are listed as eastern, western, and endemic.—GEO. D. FULLER.

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[21] DIXON, H. H., and BALL, NIGEL G., A determination by means of a differential calorimeter of the heat produced during the inversion of sucrose. Notes Bot. School, Trinity Coll., Dublin **3**:121–132. 1922.

[22] RIDLER, W. F. F., The fungus present in *Pellia epiphylla* (L.) Corda. Ann. Botany **36**:193–207. *figs. 8*. 1922.

[23] MCDOUGALL, W. B., Mycorhizas of coniferous trees. Jour. Forestry **20**:255–260. *figs. 3*. 1922.

[24] RYDBERG, P. A., Phytogeographical notes on the Rocky Mountain region. X. Grasslands and other open formations of the montane zone of the southern Rockies. Bull. Torr. Bot. Club **48**:315–327. 1921.

[25] BOT. GAZ. **71**:336. 1921.